MT 26
International Conference
on Magnet Technology
Vancouver, Canada | 2019

Contribution ID: **1381** Type: **Poster Presentation**

Wed-Af-Po3.20-03 [56]: Design and Test of a Canted-Cosine-Theta Superconducting Quadrupole Prototype For CiADS Project

Wednesday, 25 September 2019 14:00 (2 hours)

The Superconducting Linac of the CiADS (China Initiative Accelerator Driven System) project contains parts of quadrupoles with conventional design. The length of the magnets takes up a lot of space on the Linac. In order to make it more compact, a 40T/m Canted-Cosine-Theta (CCT) superconducting quadrupole prototype is presented, which is put into one cryomodule with solenoids. The design comprises two layers of oppositely wound helical windings to generate high quality quadrupole. The ten wires, insulated with Nylon braid are wound once into the 2 mm wide by 5 mm deep rectangular channels. This paper describes the detailed design based on the CCT concept and reports on the fabrication and coil winding of the magnet prototype. Finally the coil is successfully energized to the design current without a quench.

Primary authors: Dr LIANG, Yu (IMP,CAS); WU, Wei (Institute of Modern Physics, Chinese Academy of Sciences)

Co-authors: ZHOU, Luncai (Institute of Modern Physics); NI, Dongsheng (Institute of Modern Physics Chinese Academy of Sciences); MEI, Enming (IMPCAS); YANG, Wenjie (Institute of modern physics, Chinese academy of sciences)

Presenter: Dr LIANG, Yu (IMP,CAS)

Session Classification: Wed-Af-Po3.20 - CCT Magnets and Field Quality of Accelerator Magnets